

REMARKS

Claims 12 and 13 have been amended.

The Examiner has rejected claims 12 and 13 under 35 USC 112, first paragraph, as failing to comply with the written description requirement and as failing to comply with the enablement requirement. In particular, the Examiner has argued that the limitations in claims 12-13 of generating two-dimensional correction data by expanding the one-dimensional data are not disclosed in the original submission. The Examiner has argued that there is no discussion in the specification how the limitation “generating two-dimensional correction data by expanding the one-dimensional correction” of claims 12 and 13 is accomplished. Applicant respectfully disagrees with the Examiner and believes that the limitations of claims 12 and 13 are disclosed on page 28, line 17 to page 29, line 11 of applicant’s specification, which teaches that “the data obtained by expanding the one-dimensional dark fixed pattern noise correction data in the... vertical direction as a correction.” Applicant has also amended claims 12 and 13 to recite that the two-dimensional correction data is generated by expanding the one-dimensional correction data in the vertical direction, so as to clarify this feature and to indicate how the two-dimensional correction data is generated. Applicant, therefore, believes that applicant’s claims 12 and 13 are in compliance with the written description and with the enablement requirements of 35 USC 112, first paragraph.

The Examiner has also rejected applicant’s claims 12 and 13 under 35 USC 102(b) as being anticipated by the Shiomi (JP Pub. No. 2001-016509A) publication. Applicant has amended applicant’s claims 12 and 13, and with respect to these claims, as amended, the Examiner’s rejections are respectfully traversed.

Applicant’s independent claim 12 has been amended to recite an image sensing

apparatus comprising: a plurality of pixels arrayed in a horizontal and a vertical direction, a storage unit configured to store a plurality of one-dimensional correction data in a horizontal direction in accordance with a plurality of ISO sensitivity settings, a setting unit configured to set ISO sensitivity, a calculating unit configured to generate two-dimensional data by expanding the one-dimensional correction data in a vertical direction, which is stored in the storage unit, a correction unit configured to correct image data outputted from the plurality of pixels by using the two dimensional correction data generated by the calculating unit, and a control unit configured to read the one-dimensional correction data in the horizontal direction from the storage unit in accordance with the ISO sensitivity set by the setting unit, and control the calculating unit so as to generate the two-dimensional correction data by expanding the read one-dimensional correction data in the vertical direction. Applicant's independent claim 13 has been similarly amended.

The constructions recited in applicant's amended independent claims 12 and 13 are not taught or suggested by the cited art of record. In particular, the cited Shiomi reference does not teach or suggest a storage unit configured to store a plurality of one-dimensional correction data in a horizontal direction in accordance with a plurality of ISO sensitivity settings. The Shiomi reference also does not teach or suggest reading the one-dimensional correction data in the horizontal direction from the storage unit in accordance with the ISO sensitivity set by the setting unit and generating two-dimensional correction data by expanding the read one-dimensional correction data in a vertical direction.

Shiomi discloses an imaging system that includes image pickup element 5 with a two-dimensional pixel array, a first multiplying circuit 18 for multiplying one-dimensional correction data in the horizontal direction, a second multiplying circuit 19 for multiplying

one-dimensional correction data in the vertical direction, and selectors 16 and 17 for selecting one-dimensional correction data according to the pixel's position. Abstract; paragraphs [0029]-[0032], [0049]. The system of Shiomi also includes memory or storage units 12-15 which store thereon one-dimensional correction data for performing correction of a sensitivity profile of the image sensor, such that a first horizontal correction data is stored on storage unit 12, a second horizontal correction data is stored on storage unit 13, a first vertical correction data is stored on storage unit 14 and a second vertical correction data is stored on storage unit 15. See, paragraph [0046]. The first and second horizontal one-dimensional correction data, and the first and second vertical one-dimensional correction data of Shiomi are determined according to the properties of the image sensor and stored beforehand in their respective memory units. Paragraphs [0056]-[0058]. The selectors 16 and 17 of Shiomi are used to select the memory 12-15 from which the correction data is read out based on the address of the pixel. See, paragraphs [0045]-[0048] and [0059]-[0060]; See also, paragraphs [0036]-[0038] (teaching that it is desirable to include a means for changing the horizontal and vertical one-dimensional amendment data according to the condition of the image pickup optical system, according to the focal distance of the image pickup optical system, a field angle and image, and according to the location of the pixel). Shiomi teaches that the image sensor can include several fields or areas of different (high and low) sensitivity profiles, so that the address of the pixel indicates the field in which the pixel is located, and thus, the horizontal and vertical one-dimensional correction data are selected by the selectors 16, 17 based on the pixel's address and the field of the image sensor in which it is located. See, paragraphs [0063]-[0065]. In Shiomi, the multiplying circuits 18, 19 then use the selected horizontal and vertical one-dimensional correction data to amend the sensitivity profile of the pixel. See, paragraphs

[0066]-[0076].

Thus, Shiomi teaches a system which stores beforehand one or more horizontal one-dimensional correction data and one or more vertical one-dimensional data. Shiomi also teaches that the horizontal and vertical one-dimensional correction data are determined based on the properties of the image sensor, so that a first one-dimensional correction data is used for correcting an area of the image sensor with high sensitivity and another one-dimensional horizontal and/or vertical correction data is used for correcting an area with low sensitivity. However, Shiomi is completely silent as to ISO sensitivity settings of the image sensing apparatus and as to storing a plurality of one-dimensional correction data in a horizontal direction in accordance with a plurality of ISO sensitivity settings. Moreover, there is no mention anywhere in Shiomi of generating two-dimensional correction data by expanding in a vertical direction horizontal one-dimensional read out from the storage unit. Rather, in Shiomi, both the horizontal one-dimensional correction data and the vertical one-dimensional correction data are pre-stored in the memory, and correction of image data is performed by applying the horizontal one-dimensional correction data in the horizontal direction and thereafter applying the vertical horizontal one-dimensional correction data in the vertical direction.

Accordingly, applicant's amended independent claims 12 and 13, each of which recites a storage unit configured to store a plurality of one-dimensional correction data in a horizontal direction in accordance with a plurality of ISO sensitivity settings, reading the one-dimensional correction data in the horizontal direction from the storage unit in accordance with the ISO sensitivity set by the setting unit and generating the two-dimensional correction data by expanding the read one-dimensional correction data in the vertical direction,

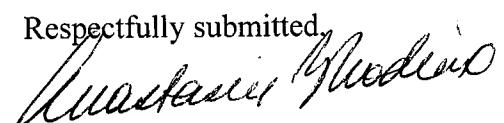
patentably distinguish over the Shiomi reference.

In view of the above, it is submitted that applicant's claims, as amended, patentably distinguish over the cited art of record. Accordingly reconsideration of the claims is respectfully requested.

Dated: September 22, 2009

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Respectfully submitted,



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